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JC03 Rec'd PCT/PTC 18 JUN 2001

CLAIMS

1. A method of construction of internally ribbed injection moulded hollow tube sections suitable for use in a filter element holding a paper roll filter media, the method comprising steps of:

5 (i) providing a generally cylindrical male mould member having longitudinally spaced rib defining grooves and a free end;

(ii) providing a female mould member adapted to overlay the male mould member in closely spaced relation defining a tube shaped void between the mould members;

10 (iii) injecting moulding material into the void, said moulding material being selected to provide a substantially rigid tube when cured;

(iv) removing the female mould member from the male mould member while the tube is in a green state, the grooves in the male mould member retaining the tube in position on the male mould member; and

15 (v) subsequently forcing the tube from the male mould member while the tube is still in a green state.

2. A method according to claim 1 wherein the grooves are not uniformly spaced on the male mould member so that once the initial release of the tube from all of the grooves takes place, as the tube is progressively slid off the male mould member, the ribs do not all encounter grooves at the same time.

20 3. ~~A method according to claim 1 or claim 2 wherein the tube shaped void includes a void forming a transverse base across one end of the tube at the free end of the male mould member, during production while the moulding material covers the free end of the male mould member, the inside of the base is vented through the male mould member to avoid suction that may inhibit pushing of the tube off the male mould member.~~

25 4. ~~A rigid injection moulded generally cylindrical canister formed about a male mould member, the canister having a side wall, the side wall having an outer surface and an inner surface, the canister being used as a filter element holding a paper roll as filter media, the canister having a thin side wall and there being spaced anti-tracking ribs projecting from the inner surface of the side wall and~~

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projecting a distance sufficient to enable the canister to be removed from the male mould member during a moulding process and while still sufficiently flexible, the paper roll being of marginally greater diameter than the internal diameter of the canister, the canister being sufficiently rigid and the paper roll being sufficiently tightly wound that the paper roll, when inserted into the canister using a press, is substantially compressed to the internal dimension of the canister without distortion of the canister.

5. A rigid injection moulded canister according to claim 4 wherein the ribs project at 1 mm to 2 mm from the inner surface of the canister.

10 6. A rigid injection moulded canister according to claim 4 wherein the ribs project about 1.5 mm from the inner surface of the canister.

7. The canister according to claim 4 wherein the ribs are evenly spaced, the inner wall having slight taper on the inner surface to enable release from the male mould.

15 8. The canister according to claim 4 including a marginal taper on the inner surface at the open end to act as a lead-in for the paper roll.

9. The canister according to claim 4 including a base and wherein the base is inwardly biased.

10. The canister according to claim 4 including a base and wherein the base is inwardly dished at the centre relative to the edges in order to provide a bias against loading as a paper roll is being pressed into the canister.

11. The canister according to claim 4 including a base and wherein the base has an inner surface with radially extending flow passages separated by lands, the lands defining a supporting surface to evenly distribute and support the paper roll media across the base of the canister to provide secondary flow passages across the base of the canister.

12. A filter element having a rigid injection moulded generally cylindrical canister formed about a male mould member, the canister having a side wall, the side wall having an outer surface and an inner surface, the canister holding a paper roll as filter media, the canister having a thin side wall and there being spaced anti-tracking ribs projecting from the inner surface of the side wall and projecting

a distance sufficient to enable the canister to be removed from the male mould member during a moulding process and while still sufficiently flexible, the paper roll being of marginally greater diameter than the internal diameter of the canister, the canister being sufficiently rigid and the paper roll being sufficiently tightly wound that the paper roll, when inserted into the canister using a press, is substantially compressed to the internal dimension of the canister without distortion of the canister.

13. A filter element according to claim 12 wherein the ribs project at 1 mm to 2 mm from the inner surface of the canister.

14. A filter element according to claim 12 wherein the ribs project about 1.5 mm from the inner surface of the canister.

15. A filter element according to claim 12 wherein the ribs are evenly spaced, the inner wall having slight taper on the inner surface to enable release from the male mould.

16. A filter element according to claim 12 including a marginal taper on the inner surface at the open end to act as a lead-in for the paper roll.

17. A filter element according to claim 12 including a base and wherein the base is inwardly biased.

18. A filter element according to claim 12 including a base and wherein the base is inwardly dished at the centre relative to the edges in order to provide a bias against loading as a paper roll is being pressed into the canister.

19. A filter element according to claim 12 including a base and wherein the base has an inner surface with radially extending flow passages separated by lands, the lands defining a supporting surface to evenly distribute and support the paper roll media across the base of the canister to provide secondary flow passages across the base of the canister.

20. A filter element according to claim 12 wherein the paper roll is wound to an average density of about 13m/radial cm.

21. A filter element according to claim 12 wherein the paper roll is wound to an average density of no less than about 11m/radial cm and no more than about 15m/radial cm.

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22. A filter element according to claim 12 wherein the paper roll is wound to an average density of about 13m/radial cm.

23. A filter element according to claim 12 wherein the paper roll is wound to an average density of about 13m/radial cm and the paper thickness is about 17gsm.

5 24. A filter element according to claim 12 wherein the paper roll is wound to an average density of no less than about 11m/radial cm and no more than about 15m/radial cm and the paper thickness is about 17gsm.

25. ~~A filter canister substantially as described with references to the accompanying drawings.~~